impingement point of said light beam on said products and diffusely reflected from an area around said impingement point due to diffusion of said light beam into said products;

a first detector disposed to receive reflected light back from said products, said first detector having a first field of view larger than said light beam cross sectional area wherein said first detector is sensitive to substantially all of said direct and diffused reflected light from said products and generates a first signal corresponding thereto;

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a second detector disposed to receive reflected light back from said products, said second detector having a second field of view generally equal to said cross sectional area of said light beam wherein said second detector is sensitive to substantially only said direct reflected light from said products and generates a second signal corresponding thereto; and

control circuitry in operable communication with said first and second detectors to receive said first and second signals and generate control signals based on either of said signals individually or a difference of said signals.

2. The apparatus as in claim 1, further comprising a removal mechanism controlled by said control signals and configured to remove objects from said products in response thereto.

3. The apparatus as in claim 2, wherein said removal mechanism comprises a bank of air ejectors disposed generally across said scanning zone, said air ejectors being of a number and location so as to be able to remove an object from said products from anywhere across a width of said scanning zone.

4. The apparatus as in claim 1, wherein said control circuitry comprises a differencing device in receipt of said first and second signals, said differencing device generating a control signal from a difference of said first and second signals that corresponds essentially to only said diffuse reflected light.

5. The apparatus as in claim 1, further comprising a first defining member disposed operably before said first detector, said first defining member defining the size of said first field of view, and a second defining member disposed operably before said second detector, said second defining member defining the size of said second field of view.

6. The apparatus as in claim 5, wherein said first and second defining members comprise diaphragm devices having apertures therethrough of a size to define said first and second field of views respectively.

7. The apparatus as in claim 1, further comprising a beam splitter device disposed operably before said first and second detection devices, said beam splitter splitting reflected light from said products into a first split beam directed to said first detector and a second split beam directed to said second detector.

8. The apparatus as in claim 1, further comprising a polarizing beam splitter operably disposed between said scanning zone and said detection devices, said polarizing beam splitter cross polarizing reflected light received from said products with respect to a given polarization of said light beam and directing said cross polarized light to said detectors, and passing reflected light received from said products of a same polarization as said light beam away from said detectors.

9. The apparatus as in claim 8, wherein said polarizing beam splitter is disposed between said light source and said scanning zone so that said concentrated light beam of a given polarization passes through said polarizing beam splitter prior to impinging on said products.

10. **(Amended)** The apparatus as in claim 1, further comprising a rotating multi-faceted mirror disposed between said light source and said scanning zone, said multi-faceted mirror directing said light beam in said scanning pattern across the width of said scanning zone.

11. The apparatus as in claim 1, wherein said light source comprises at least one laser beam generator.

12. The apparatus as in claim 1, wherein said light source comprises at least two laser beam generators, and said concentrated light beam comprises a combination of at least two laser beams of different wavelengths.

13. The apparatus as in claim 1, further comprising a vibrating table device disposed to receive said products and move said products towards said scanning zone, said scanning zone disposed below and adjacent to a forward edge of said vibrating table wherein said products substantially fall from said vibrating table and pass through said scanning zone in a free fall path.

14. **(Amended)** An apparatus for sorting products moving through a detection zone wherein irregularities or foreign objects in the products are detected and removed, said apparatus comprising:

a light source, said light source directing a concentrated light beam having a given cross sectional area in a scanning pattern towards a scanning zone wherein said

products move in a mass through said scanning zone and are impinged upon by said light beam moving in said scanning pattern, said light being directly reflected from generally the impingement point of said light beam on said products and diffusely reflected from an area around said impingement point due to diffusion or scattering of said light beam into said products;

a first detector disposed to receive reflected light back from said products, said first detector having a first field of view larger than said light beam cross sectional area wherein said first detector is sensitive to substantially all of said direct and diffused reflected light from said products and generates a first signal corresponding thereto;

a second detector disposed to receive reflected light back from said products, said second detector having a second field of view generally equal to said cross sectional area of said light beam wherein said second detector is sensitive to substantially only said direct reflected light from said products and generates a second signal corresponding thereto;

control circuitry in operable communication with said first and second detectors to receive said first and second signals and generate a first sorting control signal based on a difference between said first and second signals, said first sorting control signal corresponding substantially to only said diffused reflected light; and

a plurality of air ejectors disposed below said scanning zone and extending across a path of movement of said mass of products, said air ejectors actuated by said control signal to remove unwanted objects from anywhere within said mass of products.

15. The apparatus as in claim 14, wherein said control circuitry is configured to generate additional sorting control signals dependent on said first and second signals

individually, wherein said air ejectors are actuated by any one of said first sorting control signal and said additional sorting control signals.

16. The apparatus as in claim 15, comprising a first mode of sorting according to said first sorting control signal and based on structure of said products.

17. The apparatus as in claim 15, comprising a second mode of sorting according to an additional said sorting control signal dependent on said first signal and based on color variations of said products.

18. The apparatus as in claim 15, comprising a third mode of sorting according to an additional said sorting control signal dependent on said second signal and based on color variations and structure of said products.

19. The apparatus as in claim 14, further comprising a first defining member disposed operably before said first detector, said first defining member defining the size of said first field of view, and a second defining member disposed operably before said second detector, said second defining member defining the size of said second field of view.

20. The apparatus as in claim 14, wherein said first sorting control signal is used to sort by structure, and further comprising at least one additional visible light source and associated detector configured for sorting the scanned products by visible color differences.

21. A method for scanning and sorting a moving mass or products to remove unwanted irregularities and objects therefrom, said method comprising the steps of:

moving the mass of products through a scanning zone of a given width so that the products are essentially at single product depth as they pass through the inspection zone;

scanning a concentrated light beam across the path of the moving products in a scanning pattern so that all of the products are impinged by the light beam as they pass through the scanning zone, the light being directly reflected from generally the impingement point of the light beam on the products and diffusely reflected from an area around the impingement point due to diffusion or scattering of the light beam into the products;

splitting the reflected light from the products into two reflected beams; receiving one of the reflected beams with a first detection device that is sensitive to substantially all of the reflected light from the products and generating a first signal proportional thereto;

receiving one of the reflected beams with a second detection device that is sensitive to substantially only the directly reflected light from the products and generating a second signal proportional thereto; and

controlling a removal device to remove unwanted objects or irregularities from the mass of moving products with either of the first and second signals individually or a difference between the first and second signals.

22. The method as in claim 21, comprising sorting the mass of moving products based on structure of the products in a first sorting mode according to the difference between the first and second signals

23. The method as in claim 21, comprising sorting the mass of moving products based on color of the products in a second sorting mode according to the first signal.

24. The method as in claim 21, comprising sorting the mass of moving products based on structure and color of the products in a third sorting mode according to the second signal.

25. The method as in claim 21, further comprising polarizing the reflected light beam back from the products and directing any reflected light of a same polarization of the incident light beam away from the detectors and directing only cross polarized light to the detectors.

26. The method as in claim 25, comprising polarizing the reflected light beam back from the products with a polarizing beam splitter device.

27. The method as in claim 21, comprising moving the mass of products essentially vertically through the scanning zone.

28. The method as in claim 27, comprising receiving the products in a vibrating table, moving the products to a forward edge of the vibrating table by the vibrating action of the vibrating table, and allowing the products to essentially fall from the forward edge of the vibrating table in a free fall trajectory through the scanning zone.

29. The method as in claim 28, further comprising allowing the products to fall in their free fall trajectory along a feed chute.

30. The method as in claim 21, further comprising scanning an additional concentrated light beam across the path of the moving products on an opposite side from the first light beam so as to scan opposite sides of the products.